

THE WEATHER ELEMENTS.

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PRESSURE AND WINDS.

Like the preceding December, January, 1923, was notable for the disturbed atmospheric conditions. Cyclones and anticyclones, mostly well to the northward of their usual tracks, moved in rapid succession across the country, though the cyclones were usually of little importance until they reached the Atlantic coast districts, after which they frequently developed into severe storms as they moved northeasterly toward the Grand Banks.

The more important anticyclones were of the Hudson Bay type, and while moving into the United States to westward of the Great Lakes usually experienced their greatest development in the St. Lawrence Valley or the northeastern United States.

The absence of important anticyclones that usually move into the United States during midwinter from the far Canadian Northwest was one of the marked features controlling the weather of the month, and the chief factor leading to its moderate character over much of the country. As a result of this absence of important anticyclones in the Northwest, the average sea-level pressure was below normal over the greater part of the country, and notably so in the far Northwest.

In portions of the Southeastern States, and from the upper Lakes eastward to New England and the Canadian Maritime Provinces, the average pressure was somewhat higher than usual in January, and over small areas in the Southwest, and generally in California, pressure for the month was likewise above normal.

The usual trend of the changes in pressure from December to January was likewise greatly disturbed, and the increases commonly found during this month in the great central valleys and northern districts of the United States and throughout the Canadian Provinces were mainly overcome and important negative changes existed instead.

Owing to the disturbed condition of the atmosphere, due to the frequent occurrence and rapid movement of cyclones and anticyclones, the system of winds usual to January was again greatly disturbed, as during the preceding months. However, the winds were mainly from southerly points in the Gulf States and southern Great Plains, and from west to northwest along the northern border, although in a few localities, particularly in the upper Missouri Valley, they were mainly from southerly points. In New England they were largely from the northwest, and that direction prevailed over most of the Middle Atlantic States. In the far West the prevailing winds were greatly diversified, as usual, but they were mainly outward from the region of highest average pressure, which embraced central California and the middle Plateau region.

There was a marked absence of severe storms over most of the country, save in the northeastern coast districts, where the winds attained high velocities on several dates. High winds prevailed locally in southeastern Wyoming on the 3d, attaining a maximum velocity of 82 miles per hour at Cheyenne, the highest ever observed at that station.

TEMPERATURE.

The outstanding feature of the weather during January, 1923, was the almost continuously high temperatures that prevailed during the greater part of the month

over much of the country. At the same time, however, severe winter weather was the rule over New England and much of New York, which were the only localities having temperatures below the normal for the month save, in Northern California, where a small area was cooler than normal.

The first decade of the month was unusually warm over all portions of the country, save from the lower Lakes northeastward to New England, where in the main this period was distinctly cold. In the central and western districts the daily averages for this period ranged from 6° to 15° above the normal, and the highest temperatures ever known in January were reported from southern California near the end of the decade.

During the second decade, save for short interruptions, temperatures continued above normal as in the first decade, except that some cold weather for the region prevailed in California, and the averages for the decade were even higher than during that preceding over much of the interior portions of the country, ranging from 15° to 20° above the normal in the Great Plains and upper Missouri Valley. There was a sharp reaction to colder weather, however, about the end in the Dakotas and upper Mississippi Valley. Severe winter weather continued in the Northeastern States throughout the decade, the temperatures reaching unusually low points locally in New England.

The final decade of the month continued cold in New England, and like conditions prevailed during much of the period in the far West. In the districts from the Rocky Mountains eastward, save over the Northeastern States, this decade was likewise warmer than normal, though the departures were mainly less than for the preceding decades.

The month as a whole was among the warmest of record for the midwinter month over large portions of the Great Plains and central valleys, some stations reporting practically every day of the month as warmer than normal.

The highest temperatures of the month were not reported from extensive areas on any particular date, but in the main they occurred in the far West during the early part of the month, while in the districts from the Rocky Mountains eastward they occurred generally toward the end of the second and near the beginning of the third decades, except in New England, where the highest temperature of the month occurred on the first.

The lowest temperatures were likewise well scattered through the month, and no extensive regions had the lowest for the month on the same date. Freezing weather was reported from some portion of all the Southern States, but many of the Central Valley States had no temperatures of zero or lower, a condition not experienced in those States during January since State-wide weather records began, nearly 30 years ago.

PRECIPITATION.

Precipitation occurred with unusual frequency, particularly during the first half of the month, in northern districts west of the Continental Divide and from the upper Lakes eastward, as a result of the rapid passage of storm centers which moved eastward mainly over the northern districts and the adjacent parts of Canada. Two of the storms during the first half affected nearly all the districts to eastward of the Plains, the earlier from 7th to 10th, however, not giving much or any rain in the Gulf and South Atlantic districts, but the later, about the 13th to 15th, causing precipitation nearly everywhere save in the Florida Peninsula.

From the middle of the month onward there was considerably less precipitation than before in the far Northwest, the most important wet period coming about the 17th to 19th. An important storm caused much precipitation from the 20th to 22d over the middle Mississippi Valley and districts to northeastward, with especially heavy falls over the Ohio Valley, and shortly afterward a vigorous storm took a more southerly course, from the Texas coast on the 21st northeastward to the New England coast on the 25th, causing decidedly heavy rains in many parts of the Gulf and South Atlantic States and more moderate rains and snows to northward.

Meanwhile, about the 24th, California, Nevada, and Arizona, where the first half of the month had been dry for midwinter, received much rain and snow in connection with a storm which crossed the country not far from the fortieth parallel of latitude, and caused widespread rainfall or snowfall in the eastern half from the 26th to 28th. Another storm caused rain from central Oklahoma and northeastern Texas to the Carolinas and southern Middle Atlantic States just before the end of the month, and at the same time important precipitation occurred again in the far Southwest.

The precipitation for the month was abundant over a narrow strip from north-central Texas northeastward to New England, especially in Arkansas, close to and just south of the Ohio River, and from eastern Pennsylvania over the southern New England States and the coast districts of Maine. To southeastward it was generally less than normal, but was usually ample, save in the Florida Peninsula and parts of southern Georgia. In the Lake region and the north-central portion of the country the precipitation was mainly about normal or somewhat below. From the lower and middle Missouri River and the Black Hills region southwestward to the Mexican border in New Mexico and far western Texas there was decidedly little precipitation, considerable areas reporting none at all. Arizona and California had usually less than normal, the portions which are naturally driest being, as a rule, without precipitation of consequence; but other districts west of the Continental Divide had mainly rather more precipitation than normal, the excess being marked between the Cascade Mountains and the coast.

SNOWFALL.

The snowfall of January was about average in most higher districts of the far West, save to east and south of the Colorado River, and was heavy in the northern portions of the Lakes region, and especially in the Northeast. At Portland, Me., the snowfall for the month was the greatest for any month in more than half a century, and at New Haven the fall was the greatest January amount, with one exception, during a like period, and the average for all the New England States was the greatest in the 35-year period of comparative records.

The southern New England States, southeastern New Hampshire, and southwestern Maine had an unusual accumulation at the end of the month, causing great hindrance to transportation. Most of New York and the northern portions of New Jersey and Pennsylvania had much greater snowfall than the average. The southern Middle Atlantic States had less snow than usual, and this was emphatically the case from northern Ohio, Indiana, and Illinois and southern Iowa southward, also in the middle Plains.

In the Dakotas and at the lower elevations of the far West the snowfall was mainly light, and owing to high temperatures the ground was bare to a greater extent than usual. The high mountains, as a rule, retained a good stored depth and received a considerable addition, resulting in average or better prospects for spring and summer flow in the streams fed by melting snows, save in New Mexico and parts of Arizona and Colorado where the depths are small and the outlook is discouraging.

RELATIVE HUMIDITY.

Over most of the country the average relative humidity was less than normal, the deficiency ranging up to 20 per cent or more in the Great Plains. In North Dakota and thence eastward to the Great Lakes there was a general excess in the percentage, and this was true over New England. There were likewise local areas in the South Atlantic and Gulf States with percentages above normal, as well as in the far West.

SEVERE LOCAL STORMS.

The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau.]

Place.	Date.	Time.	Width of path (yards).	Loss of life.	Value of property destroyed.	Character of storm.	Remarks.	Authority.
Petersburg, Va., and vicinity.	1	a. m.				Wind	Roof of home blown off, small outhouses blown down, and tobacco houses wrecked.	Times-Dispatch (Richmond, Va.).
New York City	1					Wind and rain	Large glass sign blown down. Store window damaged.	Daily News (New York).
Asheville, N. C.	7	9:30 p. m.				Thunderstorm	Some damage to telephone lines.	Official, U. S. Weather Bureau.
Denver, Colo.	7-8					Wind	Roofs torn from buildings, trees and poles down, much damage to light and power lines.	Times (Denver, Colo.).
Fort Collins, Colo.	7-8				\$3,000	do.	A half-finished house was destroyed and other property damage reported.	Do.
Laramie, Wyo.	7-8			1	2,000	do.	Buildings unroofed, chimney and wires blown down.	Do.
Lake Charles, La., and vicinity.	22			1	1,000,000	Tornado	Several persons injured and a number of houses wrecked.	Daily News (New York); Times-Herald (Washington, D. C.).
Chattanooga, Tenn., and vicinity.	23					Ice	Damage to telephone poles, wires, and timber.	Official, U. S. Weather Bureau.
Anniston, Ala., and vicinity.	23	a. m.				Wind and rain	Windows broken, trees blown down, and traffic held up; 2 persons injured.	Star (Anniston, Ala.).
Georgia	23-24				250,000	Wind and sleet	Communication with outside points hampered; public utilities throughout the State report damage to power plants and wires.	News (Pensacola, Fla.); official, U. S. Weather Bureau.
Abilene, Tex. (25 miles south-east of).	30	p. m.	300			Tornado	Residences and outbuildings damaged.	Official, U. S. Weather Bureau; Dallas Morning News (Tex.).